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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,898	10/01/2003	Robert Louis Steigerwald	134494	8078
6147	7590	06/23/2005	EXAMINER	
GENERAL ELECTRIC COMPANY GLOBAL RESEARCH PATENT DOCKET RM. BLDG. K1-4A59 NISKAYUNA, NY 12309			STERRETT, JEFFREY L	
			ART UNIT	PAPER NUMBER
			2838	

DATE MAILED: 06/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

**Office Action Summary**

Application No.

10/676,898

Applicant(s)

STEIGERWALD ET AL.

Examiner

Jeffrey L. Sterrett

Art Unit

2838

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --****Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2/22/05 & 4/21/05
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_

1. The drawings are objected to because in figure 4 each of the transformer secondary windings are shown as being short circuited. The drawings are also objected to because in figure 5 each of the main or output capacitors are shown as being short circuited and the transformer secondary winding circuitry of the U phase auxiliary circuit is left open circuited.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action.

The objection to the drawings will not be held in abeyance.

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the AC ripple current

reduction circuit comprising an AC converter as recited by claims 6, 8, 9, and 10 must be shown or the feature canceled from the claims. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action.

The objection to the drawings will not be held in abeyance.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

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applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 3, 6, 7, and 8 are rejected under 35 U.S.C. 102(a) as being anticipated by Schutten et al (cited reference AR).

Schutten et al discloses an AC ripple current reduction circuit comprising an input AC voltage ( $V_x$ ) source; a first capacitor ( $C_{out}$ ) with the output voltage ( $V_{out}$ ) across it; a first inductor ( $L_1$ ) in series with the first capacitor; an auxiliary circuit coupled to the first inductor that includes a second capacitor ( $C_2$ ), a second inductor ( $L_2$ ) and a damping resistor ( $R_d$ ) in series, and a transformer with a primary winding in series with the first capacitor and a secondary winding in series with the second capacitor; and an enabling means.

5. Claims 1, 3, 6, and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Steigerwald et al (US 6,693,805).

Steigerwald et al discloses an AC ripple current reduction circuit comprising an input AC voltage ( $V_1$ ) source ( $Q_1$  and  $D_1$ ); a first capacitor ( $C_{out}$ ) with the output voltage ( $V_{out}$ ) across it; a first inductor ( $L_1$ ) in series with the first capacitor; an auxiliary circuit coupled to the first inductor that includes a second capacitor ( $C_b$ ), a second inductor ( $L_2$ ), and a transformer ( $T_1$ ) with a primary winding ( $N_1$ ) in series with the first capacitor and a secondary winding ( $N_2$ ) in series with the second capacitor; and an enabling means.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 4, 5, 9, and 10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Schutten et al.

Schutten et al teaches an AC ripple current reduction circuit as explained above and as recited by claims 4, 5, 9, and 10 except for configuring the circuitry for three phase AC. Official notice is taken that reconfiguring a single phase AC circuit as a three phase circuit was an old and known expedient to those of ordinary skill in the art at the time of the invention. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the AC ripple current reduction circuit of Schutten et al by reconfiguring the single phase AC circuitry into three phase circuitry in order to utilize the other commonly available form of AC power.

8. Claims 4, 5, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steigerwald et al

Steigerwald et al teaches an AC ripple current reduction circuit as explained above and as recited by claims 4, 5, 9, and 10 except for configuring the circuitry for three phase AC. Official notice is taken that reconfiguring a single phase AC circuit as a three phase circuit was an old and known expedient to those of ordinary skill in the art at the time of the invention. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the AC ripple current reduction circuit of Steigerwald et al by reconfiguring the single phase AC circuitry into three phase circuitry in order to utilize the other commonly available form of AC power.

9. Claims 11 and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Schutten et al.

Schutten et al teaches an AC ripple current reduction circuit as explained above and as recited by claims 11 and 12 except for including an third inductor connected between the neutral point and ground as part of a zero sequence enabling means. Official notice is taken that zero sequence enabling means including an third inductor connected between the neutral point and ground were old and known expedients to those of ordinary skill in the art at the time of the invention. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the AC ripple current reduction circuit of Schutten et al by including an third inductor connected between the neutral point and ground as part of a zero sequence enabling means in order to effectively allow for zero sequence operation.

10. Claims 4, 5, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steigerwald et al

Steigerwald et al teaches an AC ripple current reduction circuit as explained above and as recited by claims 11 and 12 except for including an third inductor connected between the neutral point and ground as part of a zero sequence enabling means. Official notice is taken that zero sequence enabling means including an third inductor connected between the neutral point and ground were old and known expedients to those of ordinary skill in the art at the time of the invention. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the AC ripple current reduction circuit of Steigerwald et al by including an third

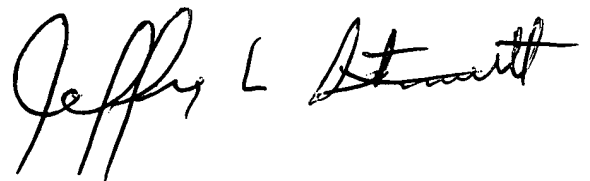
inductor connected between the neutral point and ground as part of a zero sequence enabling means in order to effectively allow for zero sequence operation.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey L. Sterrett whose telephone number is (571) 272-2085. The examiner can normally be reached on Monday-Thursday & 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on (571) 272-2084. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jeffrey L. Sterrett  
Primary Examiner  
Art Unit 2838

A handwritten signature in black ink, appearing to read "Jeffrey L. Sterrett", is written over the printed name and title.